

Amendments to the Claims

This Listing of Claims replaces all prior versions, and listings, of claims in the present application.

Listing of Claims:

1. (currently amended) A method for the bonding of disk-shaped substrates, the substrates comprising an essentially plane disk-shaped first substrate (~~11a~~) with a central opening (~~14a~~) and with a first bonding surface (~~12a~~) and a back surface (~~13a~~) opposite the first bonding surface (~~12a~~), and an essentially plane disk-shaped second substrate (~~11b~~) with a central opening (~~14b~~) and with a second bonding surface (~~12b~~) to be bonded to the first bonding surface (~~12a~~) by a layer of adhesive, the method comprising the following steps:

- providing the first substrate (~~11a~~) and the second substrate (~~11b~~),
- applying liquid adhesive to the first bonding surface (~~12a~~) or the second bonding surface (~~12b~~) or both,
- subsequently positioning, in a vacuum chamber, the first substrate (~~11a~~) and the second substrate (~~11b~~) with the second bonding surface (~~12b~~) facing the first bonding surface (~~12a~~) at a distance,
- elastically deforming the first substrate (~~11a~~) in such a way that the first bonding surface (~~12a~~) assumes a bent shape and upholding the deformation by mechanical means acting on the first substrate (~~11a~~),
- evacuating the vacuum chamber,
- moving the first substrate (~~11a~~) and the second substrate (~~11b~~) towards each other and establishing ~~a small~~ an area of contact where edges of the first bonding surface (~~12a~~) and the second bonding surface (~~12b~~) touch,
- releasing the first substrate (~~11a~~) so as to allow it to assume its ~~unstressed~~ essentially plane configuration in such a way that the area of contact spreads essentially to the entire first and second bonding surfaces, (~~12a, 12b~~) and
- raising the pressure in the vacuum chamber to atmospheric pressure.

2. (currently amended) The method according to claim 1, characterized in that the first substrate (11a) is deformed in such a way that the first contact surface (12a) assumes a concave or convex shape which is upheld by central mechanical means acting on the first substrate (11a) in the vicinity of the central opening (14a) of the same and circumferential mechanical means acting on the first substrate (11a) at positions offset towards the outer edge of the said first substrate (11a).

3. (currently amended) The method according to claim 2, characterized in that the central mechanical means exert on the first substrate (11a) a force directed away from the second substrate (11b) while the circumferential mechanical means exert on the first substrate (11a) a force directed towards the second substrate (11b), upholding a deformation of the first substrate (11a) where the shape of the first contact surface (12a) is concave.

4. (currently amended) The method according to claim 3, characterized in that the central mechanical means comprise mechanical stop means acting against the first bonding surface (12a) and the circumferential mechanical means comprise mechanical stop means acting on the back surface (13a) of the first substrate (11a).

5. (currently amended) The method according to claim 3, characterized in that, due to the elastic deformation of the first substrate (11a), the area of the first bonding surface (12a) adjacent the central opening (14a) is offset from a plane intersecting the circumference of the first bonding surface (12a) by between 1 mm and 3 mm.

6. (currently amended) The method according to claim 3, characterized in that the area of contact is a narrow annulus adjacent to the outer edge of the first bonding surface (12a) and the second bonding surface (12b) or a subset thereof.

7. (currently amended) The method of claim 6, characterized in that the first substrate (11a) is held in a slightly tilted position with respect to the second substrate (11b) when contact is established, thereby assuring that the area of contact is at first restricted to a predefined sector of the annulus.

8. (original) The method according to claim 1, characterized in that the vacuum chamber is evacuated to a pressure of between 0.01 mbar and 100 mbar, preferably between 0.05 mbar and 10 mbar and in particular between 0.1 mbar and 2 mbar.

9. (currently amended) The method according to claim 1, characterized in that the liquid adhesive is spread over the first bonding surface (~~12a~~), the second bonding surface (~~12b~~), or both by spinning the first substrate (~~11a~~), the second substrate (~~11b~~), or both, respectively.

Claims 10-17: (canceled)

18. (original) The method of claim 7, characterized in that the angle between the plane of the first substrate and the plane of the second substrate is at least 1° and not greater than 3°.

19. (new) The method of claim 2, wherein the first substrate is deformed in such a way that the first contact surface assumes a concave shape.